

CLAIMS

1 1. A power-assisted steering system having a gear mechanism, coupled to a steering
2 column, with a gear and a mating gear, each having teeth via which they engage with each other,
3 movement and power being transmitted from one gear to the other gear via effective profiles of
4 their tooth faces, wherein the effective profiles of the tooth faces (11, 12) of gear (1) and mating
5 gear (2) are made such that a linear contact (3) over the height (h_4 , h_5) of the teeth comes about
6 when the teeth (4, 5) engage with each other.

1 2. The power-assisted steering system of claim 1, wherein a convex region with preferably
2 piecewise at least approximately equal curvature of the tooth face (12) of the mating gear (2) is
3 assigned to a concave region of the tooth face (11) of the gear (1).

1 3. The power-assisted steering system of claim 1, wherein a concave region with preferably
2 piecewise at least approximately equal curvature of the tooth face (12) of the mating gear (2) is
3 assigned to a convex region of the tooth face (11) of the gear (1).

1 4. The power-assisted steering system of claim 3, wherein the concave region is disposed in
2 a region adjoining a tooth base (6, 8) and the convex region is disposed in a region adjoining a
3 tooth tip (7, 9).

1 5. The power-assisted steering system of claim 4, wherein each tooth face (11, 12) has a
2 concave region and a convex region.

1 6. The power-assisted steering system of claim 5, wherein the gear mechanism comprises a
2 worm gear mechanism that includes a worm gear (1) and a worm (2).

1 7. The power-assisted steering system of claim 6, wherein the worm gear (1) is made of a
2 material with lower strength than the material of the worm (2).

1 8. The power-assisted steering system of claim 7, wherein the tooth thicknesses of worm
2 gear (1) and worm (2) are adapted to the material properties of the material pairing of the gears.

1 9. The power-assisted steering system of claim 8, wherein the tooth thickness of the teeth
2 (4) of the worm gear (1) is greater than that of the teeth (5) of the worm (2).

1 10. The power-assisted steering system of claim 9, wherein the worm gear (1) is made
2 cylindrical in shape.

1 11. The power-assisted steering system of claim 10, wherein the worm (2) is made globoidal
2 in shape.

1 12. The power-assisted steering system of claim 1, wherein the tooth geometry of the teeth is
2 formed without involutes.